



**Billing Code 4333–15**

**DEPARTMENT OF THE INTERIOR**

**Fish and Wildlife Service**

**[Docket No. FWS–R7–ES–2019–0053; FXES111607MRG01–190–FF07CAMM00]**

**Marine Mammals; Incidental Take During Specified Activities; Proposed Incidental Harassment Authorizations for Northern Sea Otters in Southeast Alaska**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Notice of receipt of applications and proposed incidental harassment authorizations; availability of draft environmental assessments; request for comments.

**SUMMARY:** We, the U.S. Fish and Wildlife Service, have received two requests, one from the City and Borough of Sitka (CBS) and one from Duck Point Development II, LLC (DPD), for authorization to take small numbers of the southeast Alaska stock of northern sea otters incidental to pile driving in Sitka Sound and Port Frederick, Alaska, between April 1, 2019, and September 30, 2019. However, due to the time needed to process the request, we evaluated the estimated take of northern sea otters during project

activities between July 22, 2019, and December 31, 2019. We estimate there may be up to 12 nonlethal, incidental takes by harassment of 4 northern sea otters for the CBS project, and up to 1,380 nonlethal, incidental takes by harassment of 220 northern sea otters for the DPD project. In accordance with provisions of the Marine Mammal Protection Act of 1972, we request comments on our proposed authorizations, which, if finalized, will be for take by Level B harassment only. We anticipate no take by injury or death and include none in these proposed authorizations.

**DATES:** Comments on the proposed incidental harassment authorizations and draft environmental assessments must be received by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

**ADDRESSES:** *Document availability:* You may view these proposed authorizations, the application packages, supporting information, draft environmental assessments, and the lists of references cited herein at <http://www.regulations.gov> under Docket No. FWS–R7–ES–2019–0053, or these documents may be requested as described under **FOR FURTHER INFORMATION CONTACT**. You may submit comments on these proposed authorizations by one of the following methods:

- U.S. mail or hand-delivery: Public Comments Processing, Attn: Docket No. FWS–R7–ES–2019–0053, Division of Policy, Performance, and Management Programs, U.S. Fish and Wildlife Service, 5275 Leesburg Pike, MS: BPHC, Falls Church, VA 22041–3803.
- Electronic submission: Federal eRulemaking Portal at:

<http://www.regulations.gov>. Follow the instructions for submitting comments to Docket No. FWS–R7–ES–2019–0053.

We will post all comments at <http://www.regulations.gov>. You may request that we withhold personal identifying information from public review; however, we cannot guarantee that we will be able to do so. See **Request for Public Comments** for more information.

**FOR FURTHER INFORMATION CONTACT:** Mr. Christopher Putnam, U.S. Fish and Wildlife Service, 1011 East Tudor Road, MS 341, Anchorage, Alaska, 99503, by email at [fw7\\_ak\\_marine\\_mammalst@fws.gov](mailto:fw7_ak_marine_mammalst@fws.gov), or by telephone at 1–800–362–5148.

Persons who use a telecommunications device for the deaf (TDD) may call the Federal Relay Service (FRS) at 1–800–877–8339.

## **SUPPLEMENTARY INFORMATION:**

### **Background**

Section 101(a)(5)(D) of the Marine Mammal Protection Act of 1972 (MMPA; 16 U.S.C. 1361, *et seq.*), authorizes the Secretary of the Interior (Secretary) to allow, upon request, the incidental but not intentional taking by harassment of small numbers of marine mammals of a species or population stock by U.S. citizens who engage in a specified activity (other than commercial fishing) within a specified region during a period of not more than 1 year. Incidental take by harassment may be authorized only if statutory and regulatory procedures are followed and the U.S. Fish and Wildlife Service (hereafter, “the Service” or “we”) makes the following findings: (i) take is of a small

number of animals, (ii) take will have a negligible impact on the species or stock, and (iii) take will not have an unmitigable adverse impact on the availability of the species or stock for subsistence uses by coastal-dwelling Alaska Natives.

The term “take,” as defined by the MMPA, means to harass, hunt, capture, or kill, or to attempt to harass, hunt, capture, or kill any marine mammal (16 U.S.C. 1362(13)). Harassment, as defined by the MMPA, means any act of pursuit, torment, or annoyance that (i) has the potential to injure a marine mammal or marine mammal stock in the wild (the MMPA calls this “Level A harassment”), or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering (the MMPA calls this “Level B harassment”).

The terms “negligible impact,” “small numbers,” and “unmitigable adverse impact” are defined in the Code of Federal Regulations at 50 CFR 18.27, the Service’s regulations governing take of small numbers of marine mammals incidental to specified activities. “Negligible impact” is defined as an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival. Although “small numbers” is defined in 50 CFR 18.27, we do not rely on that definition as it conflates the terms “small numbers” and “negligible impact,” which we recognize as two separate and distinct requirements (see *Natural Res. Def. Council, Inc. v. Evans*, 232 F. Supp. 2d 1003, 1025 (N.D. Cal. 2003)). In our determination, we evaluate “small numbers” by analyzing the number of marine mammals likely to be taken in relation to the size of the overall stock. “Unmitigable adverse impact” is defined as an impact

resulting from the specified activity (1) that is likely to reduce the availability of the species to a level insufficient for a harvest to meet subsistence needs by (i) causing the marine mammals to abandon or avoid hunting areas, (ii) directly displacing subsistence users, or (iii) placing physical barriers between the marine mammals and the subsistence hunters, and (2) that cannot be sufficiently mitigated by other measures to increase the availability of marine mammals to allow subsistence needs to be met.

If the requisite findings are made, we issue an incidental harassment authorization (IHA), which sets forth the following: (i) permissible methods of taking; (ii) other means of effecting the least practicable impact on marine mammals and their habitat, paying particular attention to rookeries, mating grounds, and areas of similar significance, and on the availability of marine mammals for taking for subsistence uses by coastal-dwelling Alaska Natives; and (iii) requirements for monitoring and reporting take.

## **Summary of Requests**

### *City and Borough of Sitka—O’Connell Bridge Lightering Float*

On November 12, 2018, the City and Borough of Sitka, Alaska, (hereafter “CBS”) submitted a request to the Service’s Marine Mammals Management Office (MMM) for authorization to take by harassment a small number of northern sea otters (*Enhydra lutris kenyoni*, hereafter also “sea otters” or “otters”). Following requests for additional information, CBS submitted an amended application on March 21, 2019, and additional information was received on March 25, 2019. The applicant expects that take by incidental harassment may occur during its planned pile-driving activities at the O’Connell Bridge dock facility located in Sitka, Alaska.

*Duck Point Development II, LLC—Hoonah Berth II Project*

On January 30, 2019, Duck Point Development II, LLC, (hereafter “DPD”) submitted a request to the Service’s MMM for authorization to take by harassment a small number of sea otters. Following requests for additional information, DPD submitted an amended application on March 21, 2019. The applicant expects that take by incidental harassment may occur during their planned pile-driving activities at Cannery Point located near Hoonah, Alaska.

**Description of Specified Activities and Geographic Area**

*City and Borough of Sitka—O’Connell Bridge Lightering Float*

The specified activity (the “project”) consists of CBS’s proposed repairs to the O’Connell Bridge Lightering Float, specifically the removal and replacement of six 16-inch-diameter steel pipe piles. CBS will conduct work on 3 days between July 22, 2019, and December 31, 2019.

Removal of the extant piles will be accomplished by either dry pull or vibratory extraction. Sockets to accommodate the replacement piles will be drilled so that the piles may be installed to a greater depth than that of the existing piles, allowing for the accommodation of larger vessels. The replacement piles will be installed using both vibratory and impact methods. Transfer of personnel and equipment between shore and the work platform will be done using skiffs approximately 7.6–10.7 meters (m) or 25–30 feet (ft) in length with a 35–50 horsepower (hp) outboard engine. Further information and technical specifications can be found in CBS’s IHA application available at:

*<http://www.regulations.gov>, Docket No. FWS–R7–ES–2019–0053.*

*Duck Point Development II, LLC—Hoonah Berth II Project*

The project at Hoonah consists of two components: (1) the installation of a lightering float at the existing dock facility on the southwest side of Cannery Point; and (2) the installation of a cruise ship berth on the northeast side of Cannery Point. This will involve the installation and subsequent removal of up to 62 temporary 30-inch piles and installation of 45 permanent piles ranging from 24 to 42 inches in diameter. Temporary piles will be installed and removed by vibratory extraction; permanent piles will be installed using both vibratory and impact methods. Additionally, there will be socket and anchor drilling to secure piles at depth. Transfer of personnel and equipment between shore and the work platform will be done using skiffs approximately 7.6–10.7 m (25–30 ft) in length with a 35–50 hp outboard engine, and a similar vessel will be used for visual monitoring of marine mammals in the waters of Port Frederick and parts of Icy Strait. Work will take place over a 75-day period between July 22, 2019, and December 31, 2019. Further information and technical specifications can be found in DPD's IHA application at: *<http://www.regulations.gov>, Docket No. FWS–R7–ES–2019–0053.*

**Description of Marine Mammals in the Specified Area**

The northern sea otter is currently the only marine mammal under the Service's jurisdiction that normally occupies Sitka Sound and Port Frederick, Alaska. There are three stocks of northern sea otters in Alaska. These are the southeast, southcentral, and southwest stocks. Sea otters that occur in Sitka Sound and Port Frederick/Icy Strait

belong to the southeast Alaska stock. The Service's most recent stock assessment report is available at

[https://www.fws.gov/alaska/fisheries/mmm/stock/Revised\\_April\\_2014\\_Southeast\\_Alaska\\_Sea\\_Otter\\_SAR.pdf](https://www.fws.gov/alaska/fisheries/mmm/stock/Revised_April_2014_Southeast_Alaska_Sea_Otter_SAR.pdf).

Sea otters may occur anywhere within the specified project area other than upland areas. Abundance and densities of the southeast Alaska stock of sea otters were estimated from aerial surveys conducted by the Service in cooperation with the U.S. Geological Survey (USGS) between 1995 and 2012 (Tinker *et al.*, in press). Total abundance in the northern region of Southeast Alaska was estimated to be 11,635 sea otters, with over half (7,955) of these animals occurring in Glacier Bay (Tinker *et al.*, in press). Densities of sea otters in the project areas were estimated at 0.842 otters per square km (km<sup>2</sup>) in Sitka Sound and 0.368 otters per km<sup>2</sup> in Port Frederick and Icy Strait (Tinker *et al.*, in press).

Sea otters generally occur in shallow water near the shoreline. They are most commonly observed within the 40-m (131-ft depth contour (USFWS, 2014), although they can be found in areas with deeper water. Depth is generally correlated with distance to shore, and sea otters typically remain within 1 to 2 kilometers (km) (0.62 to 1.24 miles (mi)) of shore (Riedman and Estes 1990). They tend to remain closer to shore during storms, but they may be found farther from shore when seas are calm (Lensink 1962; Kenyon 1969).

Sea otters are non-migratory and generally do not disperse over long distances (Garshelis and Garshelis 1984). They usually remain within a few kilometers of their established feeding grounds (Kenyon 1981). Breeding males remain for all or part of the year in a breeding territory covering up to 1 km (0.62 mi) of coastline. Adult females



have home ranges of approximately 8 to 16 km (5 to 10 mi), which may include one or more male territories. Juveniles move greater distances between resting and foraging areas (Lensink 1962; Kenyon 1969; Riedman and Estes 1990). Although sea otters generally remain local to an area, they are capable of long-distance travel. Otters in Alaska have shown daily movement distances greater than 3 km (1.9 mi) at speeds up to 5.5 km/hour (3.4 mi/hour) (Garshelis and Garshelis 1984).

## **Potential Effects of the Activities**

### *Exposure of Sea Otters to Noise*

The applicants have requested authorizations for Level B incidental harassment of the southeast Alaska stock of northern sea otters. Otters in the project area will be exposed to the visual and auditory stimulation associated with the presence and operation of pile-driving equipment and support vessels. Vessel traffic and human presence on docks are common in Sitka Sound and Port Frederick/Icy Strait; however, pile-driving operations will create sounds that are unfamiliar to otters in these areas. If sea otters are disturbed, it will likely be due to the underwater noise associated with pile-driving operations, or possibly, the noise in tandem with the sight of equipment and vessels. Pile driving and vessel operations may cause disruptions to biologically significant sea otter behavioral patterns, thereby resulting in incidental take by Level B harassment.

### Noise from Pile Driving

During the course of pile driving, a portion of the kinetic energy from the hammer is lost to the water column in the form of sound. Levels of underwater sounds produced

during pile driving are dependent upon the size and composition of the pile, the substrate into which the pile is driven, bathymetry, physical and chemical characteristics of the surrounding waters, and pile installation method (Illingworth and Rodkin 2007, 2014; Denes *et al.* 2016).

Both impact and vibratory pile installation produce underwater sounds of frequencies predominantly lower than 2.5 kilohertz (kHz), with the highest intensity of pressure spectral density at or below 1 kHz (Denes *et al.* 2016; Dahl *et al.* 2015; Illingworth and Rodkin 2007). Source levels of underwater sounds produced by impact pile driving tend to be higher than for vibratory pile driving; however, both methods of installation can generate underwater sound levels capable of causing behavioral disturbance or hearing threshold shift in marine mammals. A summary of the properties of sounds produced by the proposed activities can be found in table 1.

Whether a specific noise source will affect an otter depends on several factors, including the distance between the animal and the sound source, the sound intensity, background noise levels, the noise frequency, duration, and whether the noise is pulsed or continuous. The actual noise level perceived by individual otters will depend on distance to the pile-driving site, whether the animal is above or below water, atmospheric and environmental conditions, and the operational parameters of the piles and pile-driving equipment being used.

Table 1. Summary of acoustic source levels for proposed activities.

Applicant	Activity	Sound Pressure Levels (dB re 1 $\mu$ Pa)	Frequency	References
CBS	Impact pile driving	181.3 dB <sub>PK</sub> @ 10 m (168.2 dB <sub>SEL</sub> @ 10 m)	Up to 2.5 kHz	Austin <i>et al.</i> 2016; Denes <i>et al.</i> 2016

CBS	Vibratory pile installation/removal	161 @ 10 m	Up to 2.5 kHz	Austin <i>et al.</i> 2016; Denes <i>et al.</i> 2016
CBS	Socket drilling	189.8 @ 1 m	Up to 10 kHz	Denes <i>et al.</i> 2016
CBS	General vessel operations	145–175 dB rms @ 1 m	10–1,500 Hz	Richardson <i>et al.</i> 1995; Kipple and Gabriele 2004; Ireland and Bisson 2016
CBS	Barge operations	180 dB rms @ 1 m	10–1,500 Hz	Richardson <i>et al.</i> 1995; Kipple and Gabriele 2004; Ireland and Bisson 2016
DPD	Impact pile driving	198.6 dB <sub>PK</sub> @ 10 m (186.7 dB <sub>SEL</sub> @ 10 m)	Up to 2.5 kHz	Austin <i>et al.</i> 2016; Denes <i>et al.</i> 2016
DPD	Vibratory pile installation/removal	161.9 to 168.2 @ 10 m	Up to 2.5 kHz	Austin <i>et al.</i> 2016; Denes <i>et al.</i> 2016
DPD	Socket and anchor drilling	189.8 @ 1 m	Up to 10 kHz	Denes <i>et al.</i> 2016
DPD	General vessel operations	145–175 dB rms @ 1 m	10–1,500 Hz	Richardson <i>et al.</i> 1995; Kipple and Gabriele 2004; Ireland and Bisson 2016
DPD	Barge operations	180 dB rms @ 1 m	10–1,500 Hz	Richardson <i>et al.</i> 1995; Kipple and Gabriele 2004; Ireland and Bisson 2016

CBS = City and Borough of Sitka, DPD = Duck Point Development II, LLC for Hoonah Berth II  
dB<sub>PK</sub> = Decibels peak, dB<sub>SEL</sub> = Decibels sound exposure level, dB<sub>RMS</sub> = Decibels root mean squared.

## Noise from Vessels

Characteristics of sounds produced by vessels are a product of several variables pertaining to the specifications of the vessel, including the number and type of engines, propeller shape and size, and the mechanical condition of these components. Operational status of the vessel, such as pushing or towing heavy loads, or using bow thrusters, can significantly affect the levels of sounds emitted by the same vessel at different times (Richardson *et al.* 1995; Ireland and Bisson 2016).

The proposed vessels are skiffs approximately 7.6–10.7 m (25–30 ft) in length with 35–50 hp outboard engines. Recordings of sounds produced by similar vessels in Glacier Bay National Park were loudest at frequencies between roughly 100 Hertz (Hz)

and 5 kHz, with source levels ranging from 160–182 Decibels referenced at 1 micro Pascal at 1 meter (dB re 1  $\mu$ Pa at 1 m) (Kipple and Gabriele 2004). Acoustic properties of sounds expected from vessel operations are shown in table 1.

### Sea Otter Hearing

Sound frequencies produced by vessels, pile driving, and removal equipment will fall within the hearing range of northern sea otters and will be audible to animals during the proposed construction activities. Controlled sound exposure trials on southern sea otters (*E. l. nereis*) indicate that those otters can hear frequencies between 125 Hz and 38 kHz with best sensitivity between 1.2 and 27 kHz (Ghoul and Reichmuth 2014). Aerial and underwater audiograms for a captive adult male southern sea otter in the presence of ambient noise suggest the sea otter's hearing was less sensitive to high-frequency (greater than 22 kHz) and low-frequency (less than 2 kHz) sounds than terrestrial mustelids but similar to that of sea lions. Dominant frequencies of southern sea otter vocalizations are between 3 and 8 kHz, with some energy extending above 60 kHz (McShane *et al.* 1995; Ghoul and Reichmuth 2012a).

Exposure to high levels of sound may cause changes in behavior, masking of communications, temporary or permanent changes in hearing sensitivity, discomfort, and injury. Species-specific criteria for sea otters have not been identified for preventing harmful sound exposures. Thresholds have been developed for other marine mammals, above which exposure is likely to cause behavioral disturbance and injuries (Southall *et al.* 2007, 2019; Finneran and Jenkins 2012; NMFS 2018a). Because sea otter hearing abilities and sensitivities have not been fully evaluated, we relied on functionally similar

hearing information from other species to evaluate the potential effects of noise exposure.

California sea lions (*Zalophus californianus*) (an otariid pinniped) have shown a frequency range of hearing most functionally similar to that of southern sea otters (Ghoul and Reichmuth 2014) and provide the closest proxy for which data are available. Sea otters and otariid pinnipeds share a similar mammalian aural physiology (Echteler *et al.* 1994; Solntseva 2007). Both are adapted to amphibious hearing, and both use sound in similar ways.

### Exposure Thresholds

Noise exposure criteria have been established by the NMFS for identifying underwater noise levels capable of causing Level A harassment (injury) of marine mammals, including otariid pinnipeds (NMFS 2018a). Sea otter-specific criteria have not been established; however, because of the biological similarities between otariid pinnipeds and sea otters, we assume that noise criteria developed by NMFS for injury for otariid pinnipeds are a suitable proxy for sea otters. Those criteria are based on estimated levels of sound exposure capable of causing a permanent shift in sensitivity of hearing (e.g., a permanent threshold shift (PTS) (NMFS 2018a)). Exposure to moderate durations of very loud noise or long-term continuous exposure of moderate noise levels may cause the hairs within the inner ear system to die or disable the synapses between hair cells and their neurons, resulting in PTS.

NMFS's (2018a) criteria for sound exposure incorporate two metrics of exposure: the peak level of instantaneous exposure likely to cause PTS, and the effects of cumulative exposure during a 24-hour period. They also include weighting adjustments

for the sensitivity of different species to varying frequencies. PTS-based injury criteria were developed from theoretical extrapolation of observations of temporary threshold shifts (TTS) detected in lab settings during sound exposure trials. The estimated PTS thresholds for otariid pinnipeds are 232 dB peak and 203 dB sound exposure level cumulative (SELcum) for impulsive noise, and 219 dB SELcum for non-impulsive noise (NMFS 2018a). NMFS criteria for Level A harassment represents the best available information for predicting injury from exposure to underwater sound among otariid pinnipeds. We assume these criteria also represent appropriate exposure limits for Level A harassment of sea otters. A recent review of literature regarding the effects of noise upon the hearing of marine mammals placed sea otters into a functional hearing group called “other carnivores”, which also includes otariid pinnipeds (Southall *et al.* 2019), but no new hearing threshold criteria were identified in that study.

NMFS (2018a) criteria do not identify thresholds for avoidance of Level B harassment. For pinnipeds, NMFS has adopted a 160-dB threshold Level B harassment from exposure to impulse noise and a 120-dB threshold for continuous noise (NMFS 1998; HESS 1999; NMFS undated). These thresholds were developed from observations of mysticetes responding to airgun operations (*e.g.*, Malme *et al.* 1983a, 1983b; Richardson *et al.* 1986, 1995) and from equating Level B harassment with noise levels capable of causing TTS in lab settings.

Southall *et al.* (2007) reviewed the literature and derived TTS thresholds for pinnipeds from impulsive sounds based on 212 dB peak and 171 dB SELcum. The updated review from Southall *et al.* (2019) gives values of 232 dB peak and 203 dB SELCUM for the TTS threshold for the “other carnivore” group. Kastak *et al.* (2005)

found exposures resulting in TTS in pinnipeds ranging from 152 to 174 dB (183–206 dB SEL). Kastak *et al.* (2008) demonstrated persistent TTS, if not PTS, after 60 seconds of 184 dB SEL. Kastelein *et al.* (2012) found small but statistically significant TTSs at approximately 170 dB SEL (136 dB, 60 min) and 178 dB SEL (148 dB, 15 min). Finneran (2015) summarized these and other studies, which NMFS (2018a) has used to develop a TTS threshold for otariid pinnipeds of 199 dB SELCUM.

Southall *et al.* (2007) also assessed behavioral response studies and found considerable variability among captive pinnipeds. They determined that exposures between approximately 90–140 dB generally do not induce strong behavioral responses in pinnipeds in water (Southall *et al.* 2007). Avoidance and other behavioral effects were observed in the range between 120–160 dB; however, only one of the observed reactions reported in Southall *et al.* (2007) was sufficiently severe to meet behavioral criteria for take by Level B harassment (see *Characterizing Take by Level B Harassment*, below). In the *Evidence from Sea Otter Studies* section below, we review the observed and studied behavioral responses of wild sea otters to noise. Behavioral observations indicate that a 120-dB threshold is likely to overestimate the likelihood of Level B harassment, but these studies do not provide definitive support for a particular threshold. Therefore, the work of NMFS (2018a, undated), Southall *et al.* (2007, 2019), and others described here represent the best available data and suggest that either a 199-dB SELCUM threshold or a 160-dB threshold is likely to be the best predictor of Level B harassment.

In conclusion, a 199-dB SELCUM exposure threshold is likely to be more accurate than a 160-dB threshold when the behaviors of individual otters can be closely monitored. Given the lack of TTS data specific to otters, the 160-dB threshold provides a

measure of insurance against underestimation of the possible risks to otters, and provides greater practicability for application of mitigation and monitoring.

Exposure to impulsive sound levels greater than 160 dB can elicit behavioral changes in marine mammals that might be detrimental to health and long-term survival where it disrupts normal behavioral routines. Thus, using information available for other marine mammals as a surrogate, and taking into consideration the best available information about sea otters, the Service has determined the received sound level under water of 160 dB as a threshold for Level B take by disturbance for sea otters for this proposed IHA (based on Ghaul and Reichmuth 2012a,b; McShane *et al.* 1995; Riedman 1983; Richardson *et al.* 1995; and others). Exposure to unmitigated in-water noise levels between 125 Hz and 38 kHz that are greater than 160 dB will be considered by the Service as Level B take for both continuous and impulsive sound sources; thresholds for potentially injurious Level A take will be 232 dB peak or 203 dB SEL for impulsive sounds and 219 dB SEL for continuous sounds (table 2).

Table 2. Summary of northern sea otter acoustic thresholds for underwater sound in the frequency range 125 Hz–38 kHz.

Marine Mammals	Injury (Level A) Threshold		Disturbance (Level B) Threshold
	Impulsive <sup>1</sup>	Non-Impulsive <sup>1</sup>	All
Sea otters	232 dB peak 203 dB SEL <sub>CUM</sub>	219 dB SEL <sub>CUM</sub>	160 dB rms

<sup>1</sup>Based on NMFS acoustic criteria for otariid pinnipeds (NMFS 2018a).

### *Evidence from Sea Otter Studies*

The available studies of northern and southern sea otter behavior indicate that sea



otters are somewhat more resistant to the effects of sound than other marine mammals (Riedman 1983, 1984; Ghoul *et al.* 2012a, b; Reichmuth and Ghoul 2012). Southern sea otters off the California coast showed only mild interest in boats passing within hundreds of meters and appeared to have habituated to boat traffic (Riedman 1983; Curland 1997). There are no available data regarding the reactions of northern sea otters to pile driving. Southern sea otters in an area with frequent railroad noise appeared to be relatively undisturbed by pile-driving activities, many showing no response and generally reacting more strongly to passing vessels than to the sounds of pile-driving equipment (ESNERR 2011; ESA 2016). Additionally, many of the otters who displayed a reaction behavior during pile driving did so while their heads were above the surface of the water, suggesting that airborne noise was as important as underwater noise in prompting the animals' reactions. When sea otters have displayed behavioral disturbance in response to acoustic stimuli, responses were short-lived, and the otters quickly became habituated and resumed normal activity (Davis *et al.* 1987, 1988; Ghoul *et al.* 2012b). Sea otters may be less sensitive to noise as they do not rely on sound to orient themselves, locate prey, or communicate underwater.

Sea otters in Alaska have shown signs of disturbance (escape behaviors) in response to the presence and approach of vessels. Behaviors included diving or actively swimming away from a boat, hauled-out sea otters entering the water, and groups of otters dispersing and swimming in multiple different directions (Udevitz *et al.* 1995). Sea otters in Alaska have also been shown to avoid areas with heavy boat traffic but return to those same areas during seasons with less traffic (Garshelis and Garshelis 1984).

Disturbance is possible from the applicants' activities. Individual sea otters in

Sitka Sound and Port Frederick/Icy Strait are likely to show a range of responses to noise from the applicants' equipment and vessels. Some may abandon the construction areas and return when the disturbance has ceased. Based on the observed movement patterns of wild otters (*i.e.*, Lensink 1962; Kenyon 1969, 1981; Garshelis and Garshelis 1984; Riedman and Estes 1990), we expect that some individuals (*e.g.*, independent juveniles) will respond to the applicants' proposed activities by dispersing to nearby areas of suitable habitat while others will not be displaced.

Some otters will likely show startle responses, change direction of travel, or dive. Otters reacting to pile driving or vessels may divert time and attention from biologically important behaviors, such as feeding. Other effects may be undetectable in observations of behavior, especially the physiological effects of chronic noise exposure. Some otters in the area of activity may become habituated to noise caused by the project due to the existing continual vessel traffic in the area and will have little, if any, reaction to the presence of vessels or human activity on the barge platforms.

### *Effects on Habitat*

Habitat areas of significance for otters exist near the project areas. Physical and biological features of coastal habitat essential to the conservation of northern sea otters include the benthic invertebrates (urchins, mussels, clams, etc.) eaten by otters and the shallow rocky areas and kelp beds that provide cover from predators. The CBS project involves the removal and replacement of piles at an extant dock facility, and little to no habitat within Sitka Sound will be altered. For the DPD project, the lightering float will be installed between two busy commercial docks at Cannery Point. This area already

experiences frequent vessel traffic, and the addition of the lightering float will not result in a substantial increase in vessel traffic to the area. Therefore, it is unlikely that sea otter habitat would be significantly modified by the addition of the lightering float.

The northeast side of Cannery Point—the proposed location for the second cruise ship berth at Hoonah—is not developed and otters may be displaced by the installation of the berth and a subsequent increase in vessel traffic. Impacts upon benthic habitat of otters and their prey are minimized by the use of a floating dock, which will not require dredging or fill. The installation of the berth will increase vessel traffic to the northeast side of Cannery Point where otters may become habituated to traffic or may be displaced. However, passengers from cruise ships are currently being transferred to shore a few at a time on board small vessels. The presence of a facility at which passengers can walk off a vessel to participate in shore excursions will bring about a reduction in the number of small vessel trips between moored cruise ships and the shore near Cannery Point.

### **Mitigation and Monitoring**

If IHAs for the applicants' projects are issued, they must specify means for effecting the least practicable impact on northern sea otters and their habitat, paying particular attention to habitat areas of significance, and on the availability of northern sea otters for taking for subsistence uses by coastal-dwelling Alaska Natives.

In evaluating what mitigation measures are appropriate to ensure the least practicable adverse impact on a species or stock and their habitat, as well as subsistence uses, we considered the manner in which, and the degree to which, the successful implementation of the measures are expected to reduce impacts to sea otters, their habitat,

and their availability for subsistence uses. We considered the nature of the potential adverse impact being mitigated (likelihood, scope, range), the likelihood that the measures will be effective if implemented, and the likelihood of effective implementation. We also considered the practicability of the measures for applicant implementation (e.g., cost, impact on operations).

To reduce the potential for disturbance from acoustic stimuli associated with the activities, the applicants have proposed mitigation measures including, but not limited to, the following:

- Development of marine mammal monitoring and mitigation plans;
- Establishment of shutdown and monitoring zones during noise-generating work;
- Visual mitigation monitoring by designated Protected Species Observers (PSOs);
- Conducting all work during periods of good visibility;
- Site clearance before start-up;
- Soft-start procedures;
- Shutdown procedures;
- Use of pile caps to reduce noise during impact pile driving; and
- Vessel strike avoidance measures.

These measures are further specified under **Proposed Authorizations**, part *B*.

*Avoidance and Minimization.*

## **Estimated Incidental Take**

*Characterizing Take by Level B Harassment*

An individual sea otter's reaction will depend on its prior exposure to vessels and human presence at the project sites, some intrinsic motivation or requirement to be in the particular area, its physiological status, or other intrinsic factors. The location, timing, frequency, intensity, and duration of the encounter are among the external factors that will also influence the animal's response.

Relatively minor reactions such as increased vigilance or a short-term change in direction of travel are not likely to disrupt biologically important behavioral patterns and are not considered take by harassment as defined by the MMPA. These types of responses typify the most likely reactions of sea otters that will be exposed to the applicants' activities. Extreme behavioral reactions capable of causing injury are characterized as Level A harassment events, which are unlikely to result from the proposed project and will not be authorized. Intermediate reactions that disrupt biologically significant behaviors of the affected animal meet the criteria for Level B harassment under the MMPA. In 2014, the Service identified the following sea otter behaviors as indicating possible Level B harassment. The following list does not describe all possible behaviors, and other situations may indicate Level B harassment:

- Swimming away at a fast pace on belly (i.e., porpoising);
- Repeatedly raising the head vertically above the water to get a better view (spy hopping) while apparently agitated or while swimming away;
- In the case of a pup, repeatedly spy hopping while hiding behind and holding onto its mother's head;
- Abandoning prey or feeding area;
- Ceasing to nurse and/or rest (applies to dependent pups);

- Ceasing to rest (applies to independent animals);
- Ceasing to use movement corridors along the shoreline;
- Ceasing mating behaviors;
- Shifting/jostling/agitation in a raft so that the raft disperses;
- Sudden diving of an entire raft; and
- Flushing animals off a haulout.

### *Estimating Exposure Rates*

The Service anticipates that incidental harassment of sea otters may occur during the proposed activities in Sitka Sound and Port Frederick/Icy Strait. Underwater noise levels from pile driving and related activities may cause short-term, nonlethal, but biologically significant changes in behavior that the Service considers Level B harassment. The number of animals affected will be determined by the distribution of animals and their location in proximity to the project work.

Sound exposure criteria provide the best available proxy for estimation of exposure. The behavioral response of sea otters to shoreline construction and vessel activities is related to the distance between the activity and the animals. Underwater sound is generated in tandem with other airborne visual, olfactory, or auditory signals from the specified activities, and travels much farther. Therefore, estimating exposure to underwater sound can be used to estimate exposure to all proposed activities.

No separate exposure evaluation was done for activities that do not generate underwater sound. All of the proposed activities that may disturb sea otters will occur simultaneously with in-water activities that do generate sound. For example, operation of

heavy equipment on barge platforms will facilitate underwater pile driving. The otters affected by the equipment operations are the same as those affected by the pile driving. Sound exposure and behavioral disturbances are accumulated over a 24-hour period, resulting in estimation of one exposure from all in-water sources rather than one each from equipment operations and pile-driving noise.

### *Predicting Behavioral Response Rates*

Although we cannot predict the outcome of each exposure of a sea otter to the sounds, equipment, and vessels used for the proposed activities, it is possible to consider the most likely reactions. Whether an individual animal responds behaviorally to such exposure is dependent upon many variables. The health, physiological state, reproductive state, and temperament of the individual animals will have an effect. Factors such as the activity of the animal, exposure to other disturbances, habituation of the animal to similar disturbances, and the presence of predators, pups, or other otters will have an effect as well. We assumed all animals exposed to underwater sound levels that meet acoustic criteria would experience Level B harassment.

### *Distances to Thresholds*

The total take of sea otters for each of the proposed construction projects in Sitka Sound and Port Frederick was estimated by calculating the number of otters in the ensonified areas during the full duration of the projects. To calculate the areas that will be ensonified during each component of the projects, we first estimated the distances that underwater sound will travel before attenuating to levels below thresholds for take by

Level A and Level B harassment. The distances to the Level A thresholds were calculated using the NMFS Acoustical Guidance Spreadsheets (NMFS 2018b) and their thresholds for otariid pinnipeds as a proxy for sea otters. Distances to the 160-dB Level B threshold were calculated using a practical spreading transmission loss model (15 LogR).

Model estimates incorporated operational and environmental parameters for each activity, and characteristics of the sound produced are shown in table 3. Weighting factor adjustments were used for SEL calculations based on NMFS Technical Guidance (NMFS 2018a). Operational parameters were estimated from the description of activities outlined in the applicants' petitions.

Table 3. Assumptions used in calculating distances to Level A and Level B thresholds.

Activity	Type of Source	Source Level <sup>1</sup>	WFA <sup>2</sup>	Source Velocity	Pulse Duration	Repetition Rate	Duration per Day
Impact pile driving (16-inch piles)	Stationary impulsive	181.3 dB <sub>PK</sub> @ 10 m (168.2 dB <sub>SEL</sub> @ 10 m)	2 kHz	N/A	N/A	30 strikes/pile	≤0.1 hrs/day
Vibratory pile driving (16-inch piles)	Stationary non-impulsive	161 @ 10 m	2.5 kHz	N/A	N/A	N/A	1 hr/day
Socket drilling	Stationary non-impulsive	189.8 @ 1 m	2.5 kHz	N/A	N/A	N/A	6 hrs/day
Crew skiff	Mobile non-impulsive	175 @ 1 m	1.5 kHz	1.54 m/s	N/A	N/A	<1 hr/day
Barge handling skiff	Stationary non-impulsive	180 @ 1 m	1.5 kHz	N/A	N/A	N/A	3 hrs/day
Impact pile driving (36-inch piles)	Stationary impulsive	198.6 dB <sub>PK</sub> @ 10 m (186.7 dB <sub>SEL</sub> @ 10 m)	2 kHz	N/A	N/A	100 strikes/pile	400 strikes/day
Impact pile driving (42-inch piles)	Stationary impulsive	198.6 dB <sub>PK</sub> @ 10 m (186.7 dB <sub>SEL</sub> @ 10 m)	2 kHz	N/A	N/A	135 strikes/pile	370 strikes/day
Vibratory pile	Stationary	161.9 @ 10 m	2.5	N/A	N/A	N/A	0.7



driving (24-inch piles)	non-impulsive		kHz				hrs/day
Vibratory pile driving (30-inch temporary piles)	Stationary non-impulsive	161.9 @ 10 m	2.5 kHz	N/A	N/A	N/A	2 hrs/day
Vibratory pile removal (30-inch temporary piles)	Stationary non-impulsive	161.9 @ 10 m	2.5 kHz	N/A	N/A	N/A	1 hr/day
Vibratory pile driving (30-inch piles)	Stationary non-impulsive	161.9 @ 10 m	2.5 kHz	N/A	N/A	N/A	1 hr/day
Vibratory pile driving (36-inch piles)	Stationary non-impulsive	168.2 @ 10 m	2.5 kHz	N/A	N/A	N/A	1 hr/day
Vibratory pile driving (42-inch piles)	Stationary non-impulsive	161.9 @ 10 m	2.5 kHz	N/A	N/A	N/A	2 hrs/day
Socket and anchor drilling	Stationary non-impulsive	189.8 @ 1 m	2.5 kHz	N/A	N/A	N/A	4 hrs/day
Crew skiff	Mobile non-impulsive	175 @ 1 m	1.5 kHz	1.54 m/s	N/A	N/A	<1 hr/day
Monitoring skiff	Mobile non-impulsive	175 @ 1 m	1.5 kHz	1.54 m/s	N/A	N/A	12 hrs/day
Barge handling skiff	Stationary non-impulsive	180 @ 1 m	1.5 kHz	N/A	N/A	N/A	3 hrs/day

<sup>1</sup> Source level is given in dBrms re 1  $\mu$  Pa, unless otherwise indicated, as measured at the given distance from the source in meters.

<sup>2</sup> Weighting factor adjustment.

The distances to the modelled Level A and Level B thresholds are shown in table 4. Each estimate represents the radial distance away from the sound source within which an otter exposed to the sound of the activity is expected to experience take by Level A or Level B harassment.

Table 4. Calculated distance in meters (m) to Level A and Level B thresholds.

Applicant	Activity	Level A —NMFS Otariid	Level
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					<b>B— USFWS</b>
City and Borough of Sitka		Impulsive		Non- impulsive	Both
		232 dB peak	203 dB SEL	219 dB SEL	160 dB rms
	Impact pile driving (16-inch piles)	0.0	0.4	--	263.0
	Vibratory pile driving/removal (16-inch piles)	--	--	0.3	11.7
	Socket drilling	--	--	8.0	97.0
	Crew skiff	--	--	0.6	10.0
	Barge handling skiff	--	--	1.5	21.5
Duck Point Development, LLC for Hoonah	Impact pile driving (36-inch piles)	0.0	37.3	--	3,744.0
	Impact pile driving (42-inch piles)	0.0	28.7	--	3,744.0
	Vibratory pile driving (24-inch piles)	--	--	0.3	13.4
	Vibratory pile driving (30-inch temporary piles)	--	--	0.5	13.4
	Vibratory pile removal (30-inch temporary piles)	--	--	0.3	13.4
	Vibratory pile driving (30-inch piles)	--	--	0.3	13.4
	Vibratory pile driving (36-inch piles)	--	--	0.9	35.2
	Vibratory pile driving (42-inch piles)	--	--	1.4	35.2
	Socket and anchor drilling	--	--	9.7	97.0
	Crew skiff	--	--	0.6	10.0
	Monitoring skiff	--	--	0.6	10.0
	Barge handling skiff	--	--	1.5	21.5

## Estimates of Take

To calculate the areas that will be ensonified by pile driving, we used either half or all of the area of the circle of the radii in table 4, above, depending on the size of the radius. Pile driving will take place close to shore; however, many of the radii are small enough that their defined circles will fall entirely, or nearly entirely, in the water, especially at higher tides—in these instances, the area was calculated as  $\pi r^2$ . The exceptions are the Level B radii for impact installation of the 36- and 42-inch piles at Hoonah; for these we used half of the area of the circle, or  $\frac{1}{2} \pi r^2$ .

The areas ensonified by crew and monitoring vessel operations were estimated by multiplying the vessels' anticipated daily track length by twice the 160-dB radius plus  $\pi r^2$  to account for the rounded ends of the track line. Based on the figures provided in the applicants' proposals and discussions with the contractors, it was estimated that each trip would be no more than 500 m (1,640 ft); six trips per day are expected for the crew vessel at Sitka, and eight trips per day are expected for the crew vessel at Hoonah. For the monitoring skiff, the track length was estimated by multiplying running time by vessel speed: 12 hours per day by 20 km per hour or about 10 knots, plus the rounded end of the track line as described above. The barge handling skiff will be stationary, so the ensonified area is simply the area of the circle defined by the 160 dB radius,  $\pi r^2$ .

We then took two approaches to estimate the number of otters that may be present within the areas that will be ensonified by the various sound sources. We used densities of otters based on recent analyses of data from aerial and skiff-based surveys conducted by the Service and USGS in southeast Alaska. The most recently available estimates of the distribution and abundance of northern sea otters in southeast Alaska indicate that the density of animals in Sitka Sound is 0.842 otters per  $\text{km}^2$ ; in the Port Frederick area the density is estimated at 0.368 animals per  $\text{km}^2$  (Tinker *et al.*, in press). To estimate the expected numbers of animals exposed to noise levels at or above the Level A and Level B thresholds, we multiplied the ensonified areas by the density of otters and the number of days for each activity. For the Sitka project, this resulted in an estimate of zero exposures of northern sea otters to noise levels exceeding Level A thresholds and 0.252 exposures of northern sea otters to noise levels exceeding Level B thresholds (table 5). For the Hoonah project, the estimates are 0.012 Level A takes and 199.888 Level B takes (table

5). The only operations with the potential for take by Level A harassment are impact pile driving of 36- and 48-inch piles. The application of shutdown measures (see *Measures to Reduce Impact*, below) will eliminate the possibility of otters being exposed to sounds in excess of Level A thresholds. No authorization of take by Level A harassment is being requested, none is expected, and none will be authorized.

Table 5. Estimate of total take for each proposed activity based on estimates derived from northern sea otter densities in the project areas. These estimates do not account for avoidance of take by the application of proposed mitigation measures.

Applicant	Activity	Number of Piles	Duration (days)	Level A			Level B
				Impulsive		Non-impulsive	
				232 pk	203 SEL	219 SEL	160 rms
City and Borough of Sitka	Impact pile driving (16-inch piles)	6	1	0.000	0.000	--	0.183
	Vibratory pile driving (16-inch piles)	6	1	--	--	0.000	0.000
	Socket drilling	--	2	--	--	0.000	0.000
	Crew skiff	--	3	--	--	0.000	0.067
	Barge handling skiff	--	3	--	--	0.000	0.002
	<b>Total</b>	--	<b>3</b>	<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.252</b>
DPD/ Hoonah Berth II	Impact pile driving (36-inch piles)	16	4	0.000	0.006	--	32.411
	Impact pile driving (42-inch piles)	8	4	0.000	0.006	--	32.411
	Vibratory pile driving (24-inch piles)	24	4.5	--	--	0.000	0.000
	Vibratory pile driving (30-inch temporary piles)	62	10.5	--	--	0.000	0.002
	Vibratory pile removal (30-inch temporary piles)	62	10.5	--	--	0.000	0.002
	Vibratory pile driving (30-inch permanent piles)	3	1.5	--	--	0.000	0.000

Vibratory pile driving (36-inch piles)	16	8	--	--	0.000	0.006
Vibratory pile driving (42-inch piles)	8	4	--	--	0.000	0.006
Socket drilling/rock anchoring	--	28	--	--	0.000	0.304
Crew skiff	--	75	--	--	0.000	2.217
Monitoring skiff	--	75	--	--	0.000	132.489
Barge handling skiff	--	75	--	--	0.000	0.040
<b>Total</b>	--	<b>75</b>	<b>0.000</b>	<b>0.012</b>	<b>0.000</b>	<b>199.888</b>

In the calculation of otter densities, sightings data from transect surveys are averaged over a large area. While densities provide the most reliable estimates of animal presence within a relatively large subset of the area for which density was calculated, they do not account for patchy distribution of animals within relatively small areas. For each project area considered here, local knowledge suggests that sea otter utilization of some areas of habitat near the construction sites is greater than indicated by density data. The estimates of take based on density (table 5) almost certainly underestimate the number of otters likely to be affected by the activities planned for each location.

Solstice Alaska Consulting, Inc. conducted surveys of the Sitka O'Connell Bridge site; the data collected suggest that between one and four sea otters can be expected near the project area daily (Solstice Alaska Consulting Inc., unpublished data). We therefore assumed that 4 animals would be present on each of the 3 days of operations.

The Hoonah Indian Association, based on local knowledge and in consultation with Solstice Alaska Consulting Inc., indicated that between one and six sea otters would likely be near the project area daily. Communications among Service staff indicated that

group sizes at Cannery Point can be larger—frequently 10 animals (Michelle Kissling, USFWS, pers. comm.). We assumed that a group of 10 otters would be present each day in the immediate project vicinity at Hoonah. Additionally, the Hoonah Indian Association indicated that larger rafts of otters, up to 60 individuals, are sighted regularly near Halibut Island, which lies within the Level B zone of acoustical influence for impact pile driving for the DPD project. For the purposes of estimating take, we therefore assumed that 60 individuals would be present at Halibut Island on each day during the project.

With this information in mind, we made a second estimate of take by Level B harassment by multiplying the number of otters expected to be in the Level B harassment zone by the number of days of operations (table 6). For the CBS project, operations are expected to take place on 3 days and result in the take of four otters each day. Four otters multiplied by 3 days results in 12 takes of otters.

The total number of days of operations for the DPD project is 75. However, the number of potentially affected otters on a given day is dependent upon which operations are undertaken. During the 8 days of impact pile driving at Hoonah, the area in which noise levels will exceed the Level B harassment threshold is likely to contain 70 sea otters:—10 animals within the immediate vicinity of Hoonah and 60 animals near Halibut Island. On the other 67 days of pile-driving operations, the Level B harassment zone does not reach Halibut Island, and would contain only the 10 animals expected to be present in the immediate vicinity of Cannery Point. On all 75 days of operations, the monitoring skiff will be operating well outside the areas defined by the 160-dB zone for pile-driving operations, and so the density approach was applied to estimating take for this larger area. Sea otters may be encountered within the 160-dB radius created by the skiff's motor (10

m or 33 ft). We estimated a Level B harassment of two sea otters per day for the operation of the monitoring skiff based on the density approach (above). The total number of Level B exposures for the DPD/Hoonah Berth II project is 1,380 (table 6).

Table 6. Estimate of total take for each proposed activity based on estimates derived from northern sea otter group sizes in the project areas.

<b>Applicant</b>	<b>Activity</b>	<b>Duration (days)</b>	<b>Number of Level B Exposures per Day</b>	<b>Total Level B Exposures</b>
City and Borough of Sitka	All	3	4	12
	<b>Total</b>			<b>12</b>
Duck Point Development/Hoonah Berth II	Impact pile driving	8	70	560
	Monitoring skiff	75	2	150
	Vibratory pile driving/removal, socket drilling, crew vessel, barge positioning	67	10	670
	<b>Total</b>			<b>1,380</b>

For the CBS project at O’Connell Bridge, we assumed that the four animals present on each day would likely be the same individuals from day to day. We therefore estimate that there would be 12 exposures of 4 northern sea otters to sounds in excess of the threshold for take by Level B harassment.

For the DPD/Hoonah Berth II project, we assumed that the composition of the groups at Cannery Point and Halibut Island would remain static but that two different individuals would be encountered by the monitoring skiff on each day of surveys of the waters of Port Frederick and Icy Strait. Thus, the number of individuals affected would be  $10+60+(2\times75)=220$  otters.

### *Critical Assumptions*

We propose to authorize up to 12 takes of 4 sea otters by Level B harassment from the CBS project. For the DPD/Hoonah Berth II project, we propose to authorize up to 1,380 takes of 220 northern sea otters. We made several critical assumptions to conduct this analysis. We assumed that take by harassment equated to exposure to noise meeting or exceeding the specified criteria. We also assumed all otters exposed to these noise levels would exhibit behavioral responses that indicate harassment or disturbance. We assumed the response rates are uniform throughout the population, though there are likely to be some animals that respond more to disturbance and some less. Our estimates also do not account for variable responses by age and sex. There is not enough information available to develop a correction factor for these differences; therefore, a correction factor was not applied. This will result in overestimation in take calculations from exposure to underwater noise and underestimation of take from all other sources. The degree of over- or under-estimation of take is unknown.

The estimate of behavioral responses do not account for the variability of movements of animals in the project area. Our assessment assumes that the animals near Sitka, Cannery Point, and Halibut Island will remain, *i.e.*, the individual composition of the affected groups of sea otters will not change. Conversely, we assume that otters encountered in the waters of Port Frederick and Icy Strait will be transitory, *i.e.*, different individual animals each day. There is not enough information about the movement of sea otters in response to specific disturbances to refine these assumptions. While otters do have smaller home ranges than other marine mammals, and those in the project area are likely to be exposed to sound during multiple days of work, it is unlikely that any single otter will continue to respond in the same manner. The otter will either leave the area



then return after activities are complete, or it will habituate to the disturbance. However, we have no data to adjust for the likelihood of departure or habituation. This situation is likely to result in overestimation of take.

We do not account for an otter's time at the water's surface where sound attenuates faster than in deeper water. The average dive time of a northern sea otter is only 85 to 149 seconds (Bodkin *et al.* 2004; Wolt *et al.* 2012). Wolt *et al.* (2012) found Prince William Sound sea otters average 8.6 dives per feeding bout, and when multiplied by the average dive time (149 sec), the average total time a sea otter spends underwater during a feeding bout is about 21 minutes. Bodkin *et al.* (2007) found the overall average activity budget (proportion of 24-hour day) spent foraging and diving was 0.48 (11.4 hours per day), and 0.52 nondiving time (12.5 hours per day). Gelatt *et al.* (2002) found that the percent time foraging ranged from 21 percent for females with very young (less than 3 weeks of age) dependent pups to 52 percent for females with old (greater than or equal to 10 weeks of age) pups. Therefore, although exposure to underwater sound during a single dive is limited, accumulation of exposure over time is expected. Our assessment will cause some overestimation in this regard.

We also assume that the mitigation measures presented will be effective for eliminating take by Level A harassment and reducing take by Level B harassment. Given that the largest Level A radius is slightly under 40 m (131 ft), it is reasonable to expect that visual monitoring and mitigation will be effective in this regard. However, additional information is needed to quantify the effectiveness of mitigation. The monitoring and reporting in these proposed IHAs will help fill this information need in the future, but for this suite of proposed activities, no adjustments were made to estimate the number of

Level B takes that will be avoided by applying effective mitigation measures.

### **Potential Impacts on the Southeast Alaska Sea Otter Stock**

The estimated level of take by Level B harassment is small relative to the most recent stock abundance estimates for the southeast Alaska stock of northern sea otter, which is 25,712 animals (USFWS 2014). The take of animals associated with the CBS project is less than 0.1 percent of the current population size ( $4 \div 25,712 \approx 0.0002$ ). For the DPD project, the take of 220 animals is about 0.9 percent of the southeast Alaska stock ( $220 \div 25,712 \approx 0.0086$ ).

### **Potential Impacts on Subsistence Uses**

Sea otter subsistence harvest by Alaska Natives from the villages of Sitka and Hoonah occurs year-round in areas relatively near the proposed project areas. Between 2013 and 2017, Alaska Native residents of Sitka harvested approximately 1,541 sea otters averaging 257 per year (although numbers from 2018 are preliminary). Over the same period, Alaska Native residents of Hoonah harvested 394 animals, averaging 67 per year.

The applicants' activities will not preclude access to hunting areas or interfere in any way with individuals wishing to hunt. Pile driving and vessel use may displace otters, resulting in changes to availability of otters for subsistence use during the project period. Otters may be more vigilant during periods of disturbance, which could affect hunting success rates. The applicants have coordinated with the Indigenous People's Council for Marine Mammals, the Alaska Sea Otter and Steller Sea Lion Commission, the Hoonah Indian Association, and the Sitka Tribe of Alaska to identify and avoid potential

conflicts. The applicants reported that no conflicts with sea otter subsistence harvest were identified by these groups.

## **Findings**

We propose the following findings regarding these actions:

### *Small Numbers*

For small numbers analyses, the statute and legislative history do not expressly require a specific type of numerical analysis, leaving the determination of “small” to the agency’s discretion. In this case, we propose a finding that the applicants’ projects may result in takes from the southeast stock as follows: the take of 4 sea otters for CBS and 220 sea otters for DPD. The current estimate of the southeast Alaska stock of northern sea otters is 25,712 animals (USFWS 2014). The number of animals taken associated with the CBS project represent 0.02 percent of the stock. For the DPD project, the number of animals taken represent 0.86 percent of the stock. Based on these numbers, we propose a finding that the applicants’ projects will take a small number of animals.

### *Negligible Impact*

We propose a finding that the incidental take by harassment resulting from the proposed project cannot be reasonably expected to, and is not reasonably likely to, adversely affect the sea otter through effects on annual rates of recruitment or survival and would, therefore, have no more than a negligible impact on the southeast Alaska stock of northern sea otters. In making this finding, we considered the best available scientific information, including the biological and behavioral characteristics of the

species; the most recent information on species distribution and abundance within the area of the specified activities; the potential sources of disturbance caused by the project; and the potential responses of animals to this disturbance. In addition, we reviewed materials supplied by the applicants, other operators in Alaska, our files and datasets, published reference materials, and species experts.

Otters are likely to respond to proposed activities with temporary behavioral modification or displacement. These reactions are unlikely to have consequences for the health, reproduction, or survival of affected animals. The areas in which sound production is expected to reach levels capable of causing harm are small and we expect visual monitoring to eliminate this risk, so Level A harassment is not anticipated and not authorized. Most animals will respond to disturbance by moving away from the source, which may cause temporary interruption of foraging, resting, or other natural behaviors. Affected animals are expected to resume normal behaviors soon after exposure, with no lasting consequences. Some animals may exhibit more acute responses typical of Level B harassment, such as fleeing, ceasing feeding, or flushing from a haulout. These responses could have significant biological impacts for a few affected individuals, but most animals will also tolerate this type of disturbance without lasting effects. We do not expect this type of harassment to affect annual rates of recruitment or survival or result in adverse effects on the species or stock.

Our proposed finding of negligible impact applies to incidental take associated with the proposed activities as mitigated by the avoidance and minimization measures identified in the applicants' mitigation and monitoring plans. These measures are designed to reduce interactions with and impacts to otters. Mitigation, monitoring, and

reporting procedures are required for the validity of our findings and are a necessary component of the IHAs. For these reasons, we propose findings that the CBS and DPD projects will have a negligible impact on the southeast Alaska stock of sea otters.

### *Impact on Subsistence*

We propose a finding that the anticipated harassment caused by both applicants' activities would not have an unmitigable adverse impact on the availability of sea otters for taking for subsistence uses. In making this finding, we considered the timing and location of the proposed activities and the location of subsistence harvest activities in the area of the proposed project. We also considered both applicants' consultations with subsistence communities and commitment to development of a Plan of Cooperation (POC), should any adverse impacts be identified.

## **Required Determinations**

### *National Environmental Policy Act (NEPA)*

We have prepared draft environmental assessment in accordance with the NEPA (42 U.S.C. 4321 *et seq.*). We have preliminarily concluded that approval and issuance of the authorizations for the nonlethal, incidental, unintentional take by Level B harassment of small numbers of the southeast Alaska stock of northern sea otters in Sitka Sound and Port Frederick, during activities conducted by the applicants in 2019, would not significantly affect the quality of the human environment, and that the preparation of an environmental impact statement for these actions is not required by section 102(2) of NEPA or its implementing regulations. We are accepting comments on these draft

environmental assessments as described above in **ADDRESSES**.

#### *Endangered Species Act (ESA)*

The proposed authorization has no effect on any species listed as threatened or endangered under the ESA.

#### *Government-to-Government Coordination*

It is our responsibility to communicate and work directly on a Government-to-Government basis with federally recognized Alaska Native tribes and corporations in developing programs for healthy ecosystems. We seek their full and meaningful participation in evaluating and addressing conservation concerns for protected species. It is our goal to remain sensitive to Alaska Native culture, and to make information available to Alaska Natives. Our efforts are guided by the following policies and directives: (1) The Native American Policy of the Service (January 20, 2016); (2) the Alaska Native Relations Policy (currently in draft form); (3) Executive Order 13175 (January 9, 2000); (4) Department of the Interior Secretarial Orders 3206 (June 5, 1997), 3225 (January 19, 2001), 3317 (December 1, 2011), and 3342 (October 21, 2016); (5) the Alaska Government-to-Government Policy (a departmental memorandum issued January 18, 2001); and (6) the Department of the Interior's policies on consultation with Alaska Native tribes and organizations.

We have evaluated possible effects of the proposed activities on federally recognized Alaska Native Tribes and corporations. Through the IHA process identified in the MMPA, the applicants have presented a communication process, culminating in a

POC if needed, with the Native organizations and communities most likely to be affected by their work. The applicants have engaged these groups in informational meetings.

### **Proposed Authorization**

The Service proposes to issue an IHA to the CBS for up to 12 incidental takes by Level B harassment of 4 northern sea otters from the southeast Alaska stock. We also propose to issue an IHA to DPD for up to 1,380 incidental takes by Level B harassment of 220 sea otters. Authorized take will be limited to disruption of behavioral patterns that may be caused by pile driving and vessel operations conducted by the applicants in Sitka Sound and Port Frederick/Icy Strait, Alaska, during the time period of July 22, 2019, through December 31, 2019. Take by injury or death to northern sea otters resulting from these construction activities and vessel operations is neither anticipated nor authorized.

The final IHA will incorporate the mitigation, monitoring, and reporting requirements provided below. The applicants would be responsible for following these requirements. These authorizations would not allow the intentional taking of sea otters.

#### *A. General Conditions for Issuance of the Proposed IHAs*

1. The taking of sea otters whenever the required conditions, mitigation, monitoring, and reporting measures are not fully implemented as required by the IHAs will be prohibited. Failure to follow measures specified may result in the modification, suspension, or revocation of the IHA.

2. If take exceeds the level or type identified in the proposed authorization (e.g., greater than 12 incidents of take of sea otters by Level B harassment for CBS; greater

than 1,380 incidents of take of sea otters by Level B harassment for DPD (including separation of a mother from young; injury; or death), the IHA will be invalidated and the Service will reevaluate its findings. If project activities cause unauthorized take, the applicant must take the following actions: (i) cease its activities immediately (or reduce activities to the minimum level necessary to maintain safety); (ii) report the details of the incident to the Service's MMM within 48 hours; and (iii) suspend further activities until the Service has reviewed the circumstances, determined whether additional mitigation measures are necessary to avoid further unauthorized taking, and notified the applicant that it may resume project activities.

3. All operations managers and vessel operators must receive a copy of the IHA and maintain access to it for reference at all times during project work. These personnel must understand, be fully aware of, and be capable of implementing the conditions of the IHA at all times during project work.

4. The IHA will apply to activities associated with the proposed project as described in this document and in the applicants' amended applications (Solstice Alaska Consulting, Inc., 2019a, and b). Changes to the proposed project without prior authorization may invalidate the IHA.

5. The applicants' IHA applications will be approved and fully incorporated into the IHAs, unless exceptions are specifically noted herein or in the final IHAs.

The CBS application includes these items: the applicant's original request for an IHA, dated November 12, 2018; the applicant's response to a request for additional information from the Service, dated March 19, 2019; the amended application, dated March 21, 2019; the applicant's response to a request for additional information from the



Service, dated March 25, 2019; and the *Marine Mammal Monitoring and Mitigation Plan* prepared by Solstice Alaska Consulting, Inc. (2019b).

The DPD application includes the following items: the applicant’s original request for an IHA, dated January 30, 2019; the applicant’s response to a request for additional information from the Service, dated March 19, 2019; the amended application, dated March 21, 2019; and the *Marine Mammal Monitoring and Mitigation Plan* prepared by Solstice Alaska Consulting, Inc. (2019a).

6. Operators will allow Service personnel or the Service’s designated representative to visit project work sites to monitor impacts to sea otters and subsistence uses of sea otters at any time throughout project activities so long as it is safe to do so. “Operators” are all personnel operating under the applicants’ authority, including all contractors and subcontractors.

#### *B. Avoidance and Minimization*

1. Shutdown and monitoring zones will be established as shown in Table 7.

Table 7: Shutdown and monitoring zones by activity type.

<b>Applicant</b>	<b>Activity</b>	<b>Level A Shutdown Zone (radius in meters)</b>	<b>Level B Monitoring Zone (radius in meters)</b>
City and Borough of Sitka	Impact pile driving (16-inch piles)	10	265
	Vibratory pile driving (16-inch piles)	10	15
	Socket and anchor drilling	15	100
	Crew skiff	10	100
	Barge handling skiff	10	25
Duck Point Development, LLC/Hoonah Berth II	Impact pile driving (36-inch piles)	50	3,745
	Impact pile driving (42-inch piles)	50	3,745
	Vibratory pile driving (24-inch piles)	10	25
	Vibratory pile driving (30-inch temporary piles)	10	25
	Vibratory pile removal (30-inch temporary piles)	10	25
	Vibratory pile driving (30-inch piles)	10	25
	Vibratory pile driving (36-inch piles)	10	50

	Vibratory pile driving (42-inch piles)	10	50
	Socket and anchor drilling	15	100
	Crew skiff	10	100
	Monitoring skiff	10	100
	Barge handling skiff	10	25

2. Vessels will not approach within 100 m (328 ft) of individual sea otters or 500 m (1,640 ft) of groups of 10 or more otters. Operators will reduce vessel speed if a sea otter approaches or surfaces within 100 m (328 ft) of a vessel.

3. All vessels must avoid areas of active or anticipated subsistence hunting for sea otters as determined through community consultations.

#### *C. Monitoring*

1. Trained and qualified PSOs will be placed at positions with good vantage of shutdown and monitoring zones for pile-driving activities to perform the monitoring of sea otters necessary for initiation of adaptive mitigation measures.

2. A trained and qualified PSO will be placed on the vessel used to monitor the Level B harassment zones defined in these IHAs and in any IHAs issued by the NMFS to perform the monitoring of sea otters necessary for initiation of adaptive mitigation measures.

3. While on shift, PSOs will have no primary duties other than to watch for and report on events related to marine mammals.

#### *D. Measures To Reduce Impacts to Subsistence Users*

Prior to conducting the work, applicants will take the following steps to reduce

potential effects on subsistence harvest of sea otters: (i) avoid work in areas of known subsistence harvest of sea otters; (ii) discuss the planned activities with subsistence stakeholders including Sitka Sound and Port Frederick villages, traditional councils, and harvest commissions; (iii) identify and work to resolve concerns of stakeholders regarding the project's effects on subsistence hunting of sea otters; and (iv) if any unresolved or ongoing concerns remain, develop a POC in consultation with the Service and subsistence stakeholders to address these concerns.

#### *E. Reporting Requirements*

1. The applicants must notify the Service at least 48 hours prior to commencement of activities.

2. Reports will be submitted to the Service's MMM weekly during project activities. The reports will summarize project work and monitoring efforts.

3. A final report will be submitted to the Service's MMM within 90 days after the expiration of the IHAs. It will include a summary of monitoring efforts and observations. All project activities will be described, along with any additional work yet to be done. Factors influencing visibility and detectability of marine mammals (e.g., sea state, number of observers, fog, and glare) will be discussed. The report will describe changes in sea otter behavior resulting from project activities and any specific behaviors of interest. Sea otter observation records will be provided in the form of an electronic database or spreadsheet files. The report will assess any effects that operations may have had on the availability of sea otters for subsistence harvest and, if applicable, evaluate the effectiveness of the POC for preventing impacts to subsistence users of sea otters.

4. Injured, dead, or distressed sea otters that are associated with project activities must be reported to the Service MMM within 48 hours of discovery. Injured, dead, or distressed sea otters that are not associated with project activities (e.g., animals found outside the project area, previously wounded animals, or carcasses with moderate to advanced decomposition, or scavenger damage) do not need to be reported to the Service. Photographs, video, location information, or any other available documentation shall be provided to the Service.

5. If behaviors indicative of Level B harassment are observed during the course of pile driving or vessel operations, the PSO will record the details regarding the behavior(s) and the distance(s) at which the animals showed behaviors indicative of harassment. If such incidences take place at distances greater than the standoff and shutdown radii described above in *Avoidance and Minimization*, this information will be reported to the Service's MMM within 24 hours; the Service MMM will evaluate the information and determine whether adjustment of the standoff or shutdown distance is appropriate.

6. All reports shall be submitted by email to [fw7\\_mmm\\_reports@fws.gov](mailto:fw7_mmm_reports@fws.gov).

7. Applicants must notify the Service upon project completion or end of the work season.

## **References**

A list of the references cited in this notice is available at [www.regulations.gov](http://www.regulations.gov) in Docket No. FWS-R7-ES-2019-0053.

## **Request for Public Comments**

If you wish to comment on these proposed IHAs, the associated draft environmental assessments, or both, you may submit your comments by any of the methods described in **ADDRESSES**. Please identify if you are commenting on the proposed IHAs (and which IHA), draft environmental assessments (and which environmental assessment), or both (IHAs and environmental assessments), make your comments as specific as possible, confine them to issues pertinent to the proposed authorization(s), and explain the reason for any changes you recommend. Where possible, your comments should reference the specific section or paragraph that you are addressing. The Service will consider all comments that are received before the close of the comment period (see **DATES**).

Comments, including names and street addresses of respondents, will become part of the administrative record for this proposal. Before including your address, telephone number, email address, or other personal identifying information in your comment, be advised that your entire comment, including your personal identifying information, may be made publicly available at any time. While you can ask us in your comments to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Dated: May 30, 2019.

**Gregory E. Siekaniec,**

*Regional Director, Alaska Region.*

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